Amendments to the Specification

Please replace the paragraph beginning at page 12, line 30 with the following rewritten paragraph:

An assurance that the vacuum system, at least to the extent that the vacuum pump assembly 52 is active, can be accomplished with a vacuum actuated switch (not shown) attached within the conduiting extending between the pump assembly 52 and the instrument 12. For example, unless such a switch is actuated, the commencement of a procedure can be logically blocked by the control assembly 70. In addition to the removal of smoke and such fluids as above discussed, the evacuation system including pump assembly [~~72~~] 52, conduiting defining a transfer channel extending to the intake ports 38, functions to remove steam which is generated by the encounter of an electrosurgical cutting arc with the fluid of tissue cells. This removal of steam (as a component of elevated temperature fluid) serves, *inter alia*, to protect healthy tissue surrounding the region of cutting from thermal trauma. As such steam is evacuated, for example, along a transfer channel within cannula component 32 and into conduiting as at 40, it will tend to condense, releasing heat associated with the latent heat of vaporization of water. Accordingly, heat within the transfer channel of the cannula component 32 may, for certain orientations of the probe, cause an external surface burn to skin or erythema, notwithstanding potential damage to internally disposed healthy tissue. Accordingly, a thermal insulator sheath or shield assembly, shown generally at 120 is seen to be located over the cannula component 32. The performance of this shield and others is discussed later herein. Not seen in the instant figure is a very thin electrically insulative and biocompatible covering of the sheath assembly 120 and adjacent portions of the cannula component 22.

Please replace the paragraph beginning at page 13, line 25 with the following rewritten paragraph:

The protectional functioning of the thermal insulator sheath assembly 120 is demonstrated in connection with Figs. 2 and 3. Looking to Fig. 2, the instrument 12 is seen to be supported by the hand 124 of a practitioner as the cannula assembly 22 extends within an incision 126 within breast region 128 of a patient. The instant demonstration is one which typically involves ultrasonic guidance. That guidance is employed, as represented in Fig. 3, to move the forward or working end region 34 of the cannula assembly 22 into confronting adjacency with a target tissue volume or lesion represented symbolically in phantom at 130. Note that the cannula

assembly 22 is in contact with surrounding interstitially disposed tissue represented generally at 132, as well as in contact with external skin surface at region 134. Steam created by the electrosurgical cutting arc of precursor electrodes at the tip of the cannula assembly 22 and as a consequence of the deployment of a capture component will be evacuated by a transfer channel extending through cannula component 32 and thence into conduiting [~~44~~] 40. Without protection as provided, for example, by the sheath assembly 120, thermally induced tissue trauma both externally and interiorally may be occasioned.

Please replace the paragraph beginning at page 14, line 7 with the following rewritten paragraph:

Referring to Fig. 4 the disposable component 16 of instrument 12 is revealed in an orientation prior to its insertion within the housing 18 of reusable component 14. This disposable component [~~14~~] 16 is sometimes referred to as the "probe". In the figure, cannula assembly 22 is seen extending forwardly from a cylindrically-shaped support housing 140. The forward region of support housing 140 supports the rotatable connector 26. In this regard, it may be observed that the connector 26 is configured with external threads 142 which are fixed for rotation with a knurled flange 144. At the rearward end of support housing 140 there is located an upstanding indexing pin 146 which, during installation of the disposable component 16, is slidably received within an upwardly disposed elongate slot 148 extending internally along an elongate receiving cavity 150. Internal threads 152 within cavity 150 threadably engage the external threads 142 of connector 26 when the disposable component 16 is inserted within the reusuable component 14.

Please replace the paragraph beginning at page 17, line 30 with the following rewritten paragraph:

Fig. 6 reveals the eyelet structure generally at 224 at the leading edge of capture component 212. The leading edges containing eyelets are bent outwardly from the orientation shown prior to the attachment to and extension of cable through them. Further, the capture component 212 is weldably attached to a drive tube or drive member 238 which extends rearwardly into support housing 140 and into engagement with the drive member associated with the tabs or ears 170 and 172 (Fig. [~~2~~] 4).

Please replace the paragraph beginning at page 18, line 26 with the following rewritten paragraph:

The precursor electrodes are mounted as a subassembly of four stainless steel electrode wires having the noted generally elongate L-shape as seen, in particular, at 190 and 191 in the instant figure. Elongate components of the precursor electrodes, for example, as identified at 252 and 253 with respect to electrodes 190 and 191 extend into a subassembly tube 254. Four such electrode assemblies are crimped inside of this tube 254 and that tube, 254, in turn is crimped within the forward portion of the precursor electrode tube 248. It has been found that the utilization of four cutting surfaces for the precursor electrodes, arranged in the cross-shaped pattern, provides preferable instrument positioning results. The resultant arrangement of confronting electrode surfaces is revealed, for example, in connection with Figs. 8 and 9. In general, precursor electrodes 190-193 will have a tissue cutting and confronting length of about 6.5mm to about 7.0mm for employment with a maximum effective capture diameter for the capture component 212 of 10mm to 20mm. Where that effective diameter expands above 20mm up to 40mm, the corresponding expanse of the precursor electrodes or their lengthwise confronting extent will be about 10mm to about 15mm. When configured having one of the larger lengthwise extents, the electrodes are slightly canted forwardly and are made resilient so as to [-] be capable of flexing forwardly as the electrosurgically excited pursing cables physically contact the precursor electrodes. During this procedure, the precursor electrodes are open-circuited and permitted to be reenergized as they are urged into alignment with the capture component leafs. This temporary re-energization of the longer precursor electrodes is found to be beneficial as the electrodes retract or bend toward the larger tissue samples being captured.

Please replace the paragraph beginning at page 22, line 32 with the following rewritten paragraph:

Thermal insulation of the cannula component also can be accomplished employing sufficiently rigid thermally insulative materials such as cross-linked foamed polyethylene marketed by Hitachi Chemical Co. America, Ltd of Cupertino, CA; Silicone fiberglass sleeving, or Polyurethane-fiber sleeving, both marketed by CNACC Import & Export Co., Ltd, Zhejiang, China. Other thermally insulative materials include sleeving materials which are air entrained (foamed) such as foamed polyurethane and foamed silicone rubber. In addition low thermal conductivity plastic materials such as urethane and polyimide may be used. Such a thermally insulative sheath assembly is represented generally at 320 in Fig. 18. As before, inasmuch as components other than the sheath 320 are identical to those described in connection with Fig. 5, the numerical identification provided in that figure is imported into Fig. 18. Looking additionally to Figs. 19 and 20, the assembly 320 is formed with a thermally insulative elongate cylindrical tube 322 extending

along a tube axis 324 from a forward end 326 to a rearward end 328. Fig. 18 reveals that the forward end 326 of tube 322 is located in abutting adjacency with the proximal end of polymeric tip component 200 and that the rearward end 328 thereof extends to a location in spaced adjacency with ferrule 30 (Fig. 4). Electrically insulative polyolefin shrink wrap or shrink tubing [~~328~~] 334 extends over a portion of polymeric tip component 200 at location 330 and thence over the outer surface of cannula component 32 as seen at rearward location 332. In general, the thermally insulative tube 322 will have a wall thickness of between 0.020 inch to about 0.200 inch. As before, the thickness of the electrically insulative shrink tube layer 328 will be about 0.003 inch.

Please replace the paragraph beginning at page 25, line 28 with the following rewritten paragraph:

Looking to Fig. 24, conditions as represented at Fig. 3 are plotted. In curve [~~324~~] 348 it may be observed that the computed temperatures for the top half of the polyolefin covered thermal shield again are above 70° centigrade at the noted time intervals of 7, 10 and 12 seconds. On the other hand, as represented at curve 350, the surface temperature of the shield bottom half in contact with tissue as at 134 in Fig. 3 remains at about 50° centigrade. For the capture component embodiments, those temperature values represented in Figs. 23 and 24 are considered to be excessive. However, for instruments engendering lesser caloric activity the extruded polymeric internally ribbed shield may be found to be acceptable. For the instant analysis, the higher surface temperatures at the covered shield may be due to increased thermal conduction. Tracing radially outwardly through the radial center-line of a given rib as illustrated in Fig. 17, the cross-sectional area of the rib will be seen to increase toward the shield outer surface. Thus, thermal resistance decreases, a condition which facilitates the transport of heat from the cannula component 32.

Please replace the paragraph beginning at page 28, line 13 with the following rewritten paragraph:

Disposable component 376 of instrument 372 is threadably engageable with the handle or reusable component 374 just behind manifold 382. Handle 374 is formed of a polymeric material and includes a polymeric housing 398 having a slot 400 formed therein through which a hand manipulated slidable tab 402 protrudes. The practitioner manually moves this tab 402 forwardly to cause the wire electrode 396 to be compressibly urged against its connection with the

forward region of slot 394 to move from a position retracted within the slot to a deployed arch-like orientation as shown. Correspondingly, the electrode is retracted by moving tab 402 rearwardly. Also located upon housing 398 is a button switch 404 manually depressable to cause electrosurgical energy to be applied to the electrode 396. Also shown as being located forwardly of the switch 404 are two LED cueing lights represented generally at 406. Electrical energy for electrosurgical activity is applied to the handle 374 and thence to the cutting electrode 396 via a flexible cable 408 having a cable connector 410 which is inserted within a console connector 412 forming a part of an electrosurgical generator represented generally at 414.

Please replace the paragraph beginning at page 28, line 28 with the following rewritten paragraph:

The electrosurgical generator 414 includes a console 416 which, in addition to connector 412, includes a console connector [~~416~~] 417 to which is coupled a cable connector 418 and associated control cable 420 extending, in turn, to a footswitch assembly represented generally at 422. Switch assembly 422 includes a footswitch 422a actuable to create a cutting arc at electrode 396 and a footswitch 422b which may be employed, for example, to apply a coagulating electrosurgical current to the electrode.

Please replace the paragraph beginning at page 30, line 5 with the following rewritten paragraph:

Referring to Fig. 28 forward region 392 is shown in sectional detail. Note that the distal end [~~462~~] 362 of electrode 396 is fixed at the tip region by a fitment [~~464~~] 364 and extends through the hollow interior of cannula component 386. As it so extends, the electrode 396 is covered with the noted electrically insulative sheath 466. The electrode 396 is somewhat rigid and is caused to deflect or deploy outwardly as shown upon the manual assertion of compressive force from tab 402 (Fig. 26) against its rearwardly disposed end at 468. Electrode 396 is retracted by a reverse maneuver. Note that the electrode wire with sheath 466 extends through a seal 470 mounted within manifold 382. Looking to that manifold, the rearward portion thereof is shown carrying the noted externally disposed threads 472 which engage corresponding internal threads within the forward portion of housing 398. Manifold 382 additionally is shown having an integrally formed evacuation outlet 474 which is in vacuum and fluid communication with the interior cavity and transfer channel 476 within cannula component

386. This transfer channel 476 extends forwardly to the rearward portion of deployment slot 394 to define an intake port located at the arrow ~~[78]~~ 478.